



**SLOVENSKI STANDARD**  
**SIST EN ISO 10363:1998**

**01-februar-1998**

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**Talilna lepila (termolepila) - Določanje toplotne obstojnosti (ISO 10363:1992)**

Hot-melt adhesives - Determination of thermal stability (ISO 10363:1992)

Schmelzklebstoffe - Bestimmung der thermischen Beständigkeit (ISO 10363:1992)

Adhésifs thermofusibles - Détermination de la stabilité thermique (ISO 10363:1992)

**Ta slovenski standard je istoveten z: EN ISO 10363:1995**

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**ICS:**

83.180            Lepila    Adhesives

**SIST EN ISO 10363:1998**    **en**

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EUROPEAN STANDARD

EN ISO 10363

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 83.180

Descriptors: plastics, adhesives, thermofusible materials, tests, determination, thermal stability

English version

**Hot-melt adhesives - Determination of thermal stability (ISO 10363:1992)**

Adhésifs thermofusibles - Détermination de la stabilité thermique (ISO 10363:1992)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

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## Foreword

The text of the International Standard from ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 193 "Adhesives".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 10363:1992 has been approved by CEN as a European Standard without any modification.

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INTERNATIONAL  
STANDARD

**ISO**  
**10363**

First edition  
1992-12-01

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**Hot-melt adhesives — Determination of  
thermal stability**

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*Adhésifs thermofusibles — Détermination de la stabilité thermique*  
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Reference number  
ISO 10363:1992(E)

**ISO 10363:1992(E)****Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10363 was prepared by Technical Committee ISO/TC 61, *Plastics*, Sub-Committee SC 11, *Products*.

Annex A of this International Standard is for information only.

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International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

# Hot-melt adhesives — Determination of thermal stability

## 1 Scope

This International Standard specifies a method for determining the thermal stability of non-reactive hot-melt adhesives at temperatures up to 260 °C.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1770:1981, *Solid-stem general purpose thermometers*.

ISO 2555:1989, *Plastics — Resins in the liquid state or as emulsions or dispersions — Determination of apparent viscosity by the Brookfield Test method*.

ISO 4625:1980, *Binders for paints and varnishes — Determination of softening point — Ring-and-ball method*.

## 3 Principle

A quantity of hot-melt adhesive is heated under specified conditions. Samples are taken at regular time intervals and any changes in viscosity and in softening point (determined by the “ring-and-ball” method) during heating are noted. The maximum temperature and the duration of the test are fixed by agreement between the adhesive user and manufacturer.

## 4 Apparatus

**4.1 Stainless-steel or glass vessel**, external diameter 65 mm, height 95 mm, equipped with a loose-fitting lid.

**4.2 Oil bath**, stirred and capable of being maintained at the operating temperature recommended by the manufacturer of the hot-melt adhesive. Alternatively, a ventilated oven may be used instead of the oil bath. The oven or bath shall be capable of heating the sample to within  $\pm 2$  °C of the required temperature.

**4.3 Glass stirring rod**.

**4.4 Apparatus for measuring the softening point** by the “ring-and-ball” method as specified in ISO 4625.

**4.5 Apparatus for measuring viscosity**, in accordance with ISO 2555.

**4.6 Thermometer**, complying with type T of ISO 1770.

**4.7 Balance**, capable of weighing to the nearest 0,1 g.

## 5 Procedure

**WARNING — For reasons of health and safety, conduct the tests in a ventilated space with a fume extraction system.**

**5.1** Place the stainless-steel or glass vessel (4.1) in the oil bath or oven (4.2) regulated to heat the sample to within  $\pm 2$  °C of the operating temperature recommended by the manufacturer of the hot-melt adhesive.

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**5.2** Add a sufficient quantity of the hot-melt adhesive under test to the vessel. Mix well with the glass stirring rod (4.3) until the sample has melted completely. Measure the temperature by inserting the thermometer (4.7) into the sample. Start the timing from this point. Continue to heat the adhesive for 2 h at the operating temperature  $\pm 2$  °C to establish thermal equilibrium.

**5.3** Measure, at the operating temperature  $\pm 2$  °C, the viscosity in accordance with ISO 2555, making the measurement directly in the stainless-steel or glass vessel, or with the aid of the rotary viscosimeter for measuring viscosity in the molten state. Using the appropriate amount of adhesive, measure the softening point by the "ring-and-ball" method as specified in ISO 4625.

**5.4** Repeat all the operations described in 5.3 at regular time intervals of between 4 h and 6 h, until the time, based on pre-determined criteria, for stopping the test is reached. Record the criteria used and the duration of the test in the test report. If skin formation is observed on the surface of the hot-melt adhesive, the skin shall be removed before each subsequent viscosity measurement.

If it is not possible to carry out the tests every 4 h to 6 h, care shall be taken to ensure that any gaps in the timing do not occur towards the end of the useful life of the adhesive.

**5.5** At the time that each measurement is taken, observe and record whether or not

- a skin has formed on the surface of the adhesive;
- fumes are being given off;
- phase separation has occurred;
- gelation has occurred;
- sedimentation has occurred;
- any change in colour has occurred.

**6 Expression of results**

Tabulate the viscosity in pascal seconds and the softening point in degrees Celsius measured after each of a series of heating intervals (in hours) chosen depending on the nature of the hot-melt adhesive and the manufacturer's instructions for use.

An example of a convenient form of expression of results is shown in annex A.

**7 Precision**

The precision of this test method is not known because inter-laboratory data are not available. When inter-laboratory data are obtained, a precision statement will be added at a subsequent revision.

**8 Test report**

The test report shall include the following information:

- a) a reference to this International Standard;
- b) all details necessary for complete identification of the hot-melt adhesive tested;
- c) information about sample conditioning;
- d) the test conditions, test temperature, time intervals between measurements, and conditions of measurement of the viscosity (type of spindle and speed) and of the "ring-and-ball" softening point;
- e) the criterion (or criteria) selected to indicate when to stop the test;
- f) the duration of the test;
- g) the tabulated test results as specified in clause 6;
- h) all procedural details that are optional or not covered by this standard, as well as any incidents that may have affected the results.